



## WORD PROBLEM EQUATIONS

### LESSON 8.5

#### Connect

$$\begin{array}{r} \$119 \quad 100\% \\ - \quad \quad -15\% \\ \hline = \quad \quad 85\% \text{ Sale Price} \end{array}$$

$$\begin{array}{r} \$150 \quad 100\% \\ - \quad \quad -30\% \\ \hline = \quad \quad 70\% \text{ Sale Price} \end{array}$$

Jan 21-8:53 AM

Jan 28-9:59 AM

#### Connect

#### EXAMPLE 1:

The regular price of a microwave is \$119. It is on sale for 15% off. What is the sale price?

$$100 - 15 = 85\%$$

Let  $x$  represent the sale price.

$$119 \times 0.85 = x$$

$$119(0.85) = x$$

$$\boxed{\$101.15 = x}$$

The sale price is \$101.15

#### Things to Remember

Use a variable to represent the unknown quantity

Express any other unknown quantities in terms of this variable, if possible

Write an equation, and solve it.

State the answer to the problem

Check your answer by substituting in the problem.

#### Practice

#### YOU TRY!

The regular price of a pair of sneakers is \$139. It is on sale for 20% off. What is the sale price?

$$100 - 20 = 80\%$$

Let  $x$  represent the sale price.

$$\$139(0.8) = x$$

$$\boxed{111.20 = x}$$

The sale price is \$111.20

#### Things to Remember

Use a variable to represent the unknown quantity

Express any other unknown quantities in terms of this variable, if possible

Write an equation, and solve it.

State the answer to the problem

Check your answer by substituting in the problem.

Jan 21-8:55 AM

Jan 21-8:55 AM

Connect

EXAMPLE 2:

A frisbee costs \$5.98 after a 20% discount. What was the original price of the frisbee?

Let  $x$  represent the original price.

$\rightarrow x \times 0.8 = 5.98$

$\frac{0.8x}{0.8} = \frac{5.98}{0.8}$

$x = 7.48$

The original price of the frisbee is \$7.48

Things to Remember

Use a variable to represent the unknown quantity

Express any other unknown quantities in terms of this variable, if possible

Write an equation, and solve it.

State the answer to the problem

Check your answer by substituting in the problem.

Jan 21-8:55 AM

Connect

YOU TRY:

A Football costs \$17.98 after a 15% discount. What was the original price of the football?

$100 - 15 = 85$

Let  $x$  represent the original price.

$x \times 0.85 = 17.98$

$\frac{0.85x}{0.85} = \frac{17.98}{0.85}$

$x = 21.15$

The original price is \$21.15.

Things to Remember

Use a variable to represent the unknown quantity

Express any other unknown quantities in terms of this variable, if possible

Write an equation, and solve it.

State the answer to the problem

Check your answer by substituting in the problem.

Jan 21-8:55 AM

Connect

EXAMPLE 3:

A DVD costs \$49 and is on sale for \$26. What is the percentage discount?

Let  $x$  represent the percentage discount.

$\frac{\text{Original} - \text{Now}}{\text{Original}} = \%$

$\frac{49 - 26}{49} = \frac{23}{49}$

$= 0.46938$

$\boxed{47\%}$

$\frac{49 - 26}{49} = x$

$\frac{23}{49} = x$

$\boxed{47\% = x}$

Things to Remember

Use a variable to represent the unknown quantity

Express any other unknown quantities in terms of this variable, if possible

Write an equation, and solve it.

State the answer to the problem

Check your answer by substituting in the problem.

Jan 21-8:55 AM

Connect

YOU TRY:

A Sony 46" TV costs \$1299 and is on sale for \$1089. What is the percentage discount?

Let  $x$  represent the % discount.

$\frac{\text{original} - \text{Now}}{\text{original}} = \%$

$\frac{1299 - 1089}{1299} = x$

$\frac{210}{1299} = x$

$0.16166 = x$

$\boxed{16\% = x}$

Things to Remember

Use a variable to represent the unknown quantity

Express any other unknown quantities in terms of this variable, if possible

Write an equation, and solve it.

State the answer to the problem

Check your answer by substituting in the problem.

Jan 21-8:55 AM

Practice

## CLASSWORK

Complete Lesson 8.5 worksheet

Jan 21-8:55 AM